Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Previously Presented): A digital matched filter for despreading on reception side a received signal sequence having been spread on transmission side, comprising:

received signal holding means for successively holding a predetermined number of samples among samples constituting said received signal sequence input in time-series manner;

spreading code generating means for generating a spreading code sequence for said despreading; and

correlation value calculating means for calculating a correlation value between said predetermined number of samples held in said received signal holding means and said generated spreading code sequence,

said correlation value calculating means including

first product-sum calculating means for calculating a correlation value between a part of the predetermined number of samples held in said received signal holding means and spreading codes corresponding to said part of the predetermined number of samples in said generated spreading code sequence,

second product-sum calculating means for calculating a correlation value between a remaining number of samples of the predetermined number of samples held in said received signal holding means and spreading codes corresponding to said remaining number of samples in said generated spreading code sequence, and

decision means for deciding whether the correlation value output from said first product-sum calculating means exceeds a predetermined threshold value to stop calculation by said second product-sum calculating means when said decision means decides that the correlation value output from said first product-sum calculating means does not exceed said predetermined threshold value.

Claim 2 (Previously Presented): A digital matched filter for despreading on reception side a received signal sequence having been spread on transmission side, comprising:

received signal holding means for successively holding samples constituting said received signal sequence input in time-series manner,

said received signal holding means including

a predetermined number of storage circuits for holding samples of said received signal sequence input in time-series manner in parallel in the same predetermined number as said predetermined number of storage circuits,

logic circuits provided at respective preceding stages of said predetermined number of storage circuits, said logic circuits each activated to pass an input signal to a corresponding one of said predetermined number of storage circuits and mask the input signal otherwise,

first control means for cyclically causing write enable state of said predetermined number of storage circuits at a predetermined timing to cyclically write said samples of the received signal sequence input in time-series manner into said predetermined number of storage circuits at said predetermined timing, and

second control means for cyclically activating said predetermined number of logic circuits at said predetermined timing to cyclically input said samples of the received signal sequence input in time-series manner to said predetermined number of storage circuits at said predetermined timing; and

said digital matched filter further comprising

spreading code generating means for generating a spreading code sequence for said despreading;

and

correlation value calculating means for calculating a correlation value between said samples of

the received signal sequence held in parallel in said predetermined number of storage circuits and said

spreading code sequence.

Claim 3 (Original): The digital matched filter according to claim 2, wherein

said predetermined number of logic circuits each have a load capacitance smaller than a load

capacitance of each of said predetermined number of storage circuits.

Claim 4 (Previously Presented): A digital matched filter for despreading on reception side a

received signal sequence having been spread on transmission side, comprising:

received signal holding means for successively holding a first predetermined

number of samples among samples constituting said received signal sequence input in

time-series manner, said first predetermined number of samples held being divided into a

second predetermined number of groups;

spreading code generating means for generating a spreading code sequence for said

despreading;

correlation value calculating means provided respectively corresponding to said

second predetermined number of groups each for calculating a correlation value between

samples of a corresponding one of said second predetermined number of group and said spreading code sequence; and

output control means for successively outputting in time-series manner respective correlation values output from respective ones of said correlation value calculating means as correlation values output from one system.

Claim 5 (Previously Presented): A digital matched filter for despreading on reception side a received signal sequence having been spread on transmission side, comprising:

received signal holding means for successively holding samples constituting said received signal sequence input in time-series manner,

said received signal holding means including

a predetermined number of storage circuits for holding samples of said received signal sequence input in time-series manner in parallel in the same predetermined number as said predetermined number of storage circuits,

logic circuits provided at respective preceding stages of said predetermined number of storage circuits, said logic circuits each activated to pass an input signal to a corresponding one of said predetermined number of storage circuits and mask the input signal otherwise,

first control means for cyclically causing write enable state of said predetermined number of storage circuits at a predetermined timing to cyclically write said samples of the received signal sequence input in time-series manner into said predetermined number of storage circuits at said predetermined timing, and

second control means for cyclically activating said predetermined number of logic circuits at said predetermined timing to cyclically input said samples of the received signal sequence input in time-series manner to said predetermined number of storage circuits at said predetermined timing; and

said digital matched filter further comprising

spreading code generating means for generating a spreading code sequence for said despreading; and

correlation value calculating means for calculating a correlation value between said samples of the received signal sequence held in parallel in said predetermined number of storage circuits and said spreading code sequence,

said correlation value calculating means including

first product-sum calculating means for calculating a correlation value between a part of samples held in said predetermined number of storage circuits and spreading codes corresponding to said part of samples in said generated spreading code sequence,

second product-sum calculating means for calculating a correlation value between the rest of samples held in said predetermined number of storage circuits and spreading codes corresponding to said rest of samples in said generated spreading code sequence, and

decision means for deciding whether the correlation value output from said first product-sum calculating means exceeds a predetermined threshold value to stop calculation by said second product-sum calculating means when said decision means decides that the correlation value output from said first product-sum calculating means does not exceed said predetermined threshold value.

Claim 6 (Original): The digital matched filter according to claim 5, wherein

said predetermined number of logic circuits each have a load capacitance smaller than a load capacitance of each of said predetermined number of storage circuits.

Claim 7 (Currently Amended): A digital matched filter for despreading on reception side a received signal sequence having been spread on transmission side, comprising:

received signal holding means for successively holding samples constituting said received signal sequence input in time-series manner,

said received signal holding means including

a first predetermined number of storage circuits for holding samples of said received signal sequence input in time-series manner in parallel in the same predetermined number as said first predetermined number of storage circuits, said first predetermined number of storage circuits being divided into a second predetermined number of groups,

logic circuits provided at respective preceding stages of said first predetermined number of storage circuits, said logic circuits each activated to pass an input signal to a corresponding one of said predetermined number of storage circuits and mask the input signal otherwise,

first control means for cyclically causing write enable state of said first predetermined number of storage circuits at a predetermined timing to cyclically write said samples of the received signal sequence input in time series manner into said first predetermined number of storage circuits at said predetermined timing, and

second control means for cyclically activating said first predetermined number of logic circuits at said predetermined timing to cyclically input said samples of the received signal sequence input in time series manner to said first predetermined number of storage circuits at said

predetermined timing;

said digital matched filter further comprising

spreading code generating means for generating a spreading code sequence for said despreading; and

correlation value calculating means provided respectively corresponding to said second predetermined number of groups each for calculating a correlation value between samples of a corresponding one of said second predetermined number of group and said spreading code sequence,

each of said correlation value calculating means including

first product-sum calculating means for calculating a correlation value between a part of samples held in the storage circuits of the corresponding group and spreading codes corresponding to said part of samples in said generated spreading code sequence,

second product-sum calculating means for calculating a correlation value between the rest of samples held in said storage circuits of the corresponding group and spreading codes corresponding to said rest of samples in said generated spreading code sequence, and

decision means for deciding whether the correlation value output from said first product-sum calculating means exceeds a predetermined threshold value to stop calculation by said second product-sum calculating means when said decision means decides that the correlation value output from said first product-sum calculating means does not exceed said predetermined threshold value; and

said digital matched filter further comprising

output control means for successively outputting in time-series manner respective correlation values output from respective ones of said correlation value calculating means as

correlation values output from one system.

Claim 8 (Original): The digital matched filter according to claim 7, wherein

said first predetermined number of logic circuits each have a load capacitance smaller

than a load capacitance of each of said first predetermined number of storage circuits.

Claim 9 (Previously Presented): A mobile wireless terminal for digital radio

communication comprising

reception-related modem means for demodulating received digital data and

signal processing means for processing a signal received by said reception-related modem means

to output the processed signal,

said reception-related modem means including a digital matched filter for despreading on

reception side a received signal sequence having been spread on transmission side,

said digital matched filter comprising:

received signal holding means for successively holding a predetermined number of samples

among samples constituting said received signal sequence input in time-series manner;

spreading code generating means for generating a spreading code sequence for said despreading;

and

correlation value calculating means for calculating a correlation value between said predetermined number of samples held in said received signal holding means and said generated spreading code sequence,

said correlation value calculating means including

first product-sum calculating means for calculating a correlation value between a part of the predetermined number of samples held in said received signal holding means and spreading codes corresponding to said part of the predetermined number of samples in said generated spreading code sequence,

second product-sum calculating means for calculating a correlation value between a remaining number of samples of the predetermined number of samples held in said received signal holding means and spreading codes corresponding to said remaining number of samples in said generated spreading code sequence, and

decision means for deciding whether the correlation value output from said first product-sum calculating means exceeds a predetermined threshold value to stop calculation by said second product-sum calculating means when said decision means decides that the correlation value output from said first product-sum calculating means does not exceed said predetermined threshold value.

Claim 10 (Previously Presented): A mobile wireless terminal for digital radio communication comprising:

reception-related modem means for demodulating received digital data and

signal processing means for processing a signal received by said reception-related modem means to output the processed signal,

said reception-related modem means including a digital matched filter for despreading on reception side a received signal sequence having been spread on transmission side,

said digital matched filter comprising:

received signal holding means for successively holding samples constituting said received signal sequence input in time-series manner,

said received signal holding means including

a predetermined number of storage circuits for holding samples of said received signal sequence input in time-series manner in parallel in the same predetermined number as said predetermined number of storage circuits,

logic circuits provided at respective preceding stages of said predetermined number of storage circuits, said logic circuits each activated to pass an input signal to a corresponding one of said predetermined number of storage circuits and mask the input signal otherwise,

first control means for cyclically causing write enable state of said predetermined number of storage circuits at a predetermined timing to cyclically write said samples of the received signal sequence input in time-series manner into said predetermined number of storage circuits at said predetermined timing, and

second control means for cyclically activating said predetermined number of logic circuits at said predetermined timing to cyclically input said samples of the received signal sequence input in time-series manner to said predetermined number of storage circuits at said predetermined timing; and

said digital matched filter further comprising

spreading code generating means for generating a spreading code sequence for said despreading; and

correlation value calculating means for calculating a correlation value between said samples of the received signal sequence held in parallel in said predetermined number of storage circuits and said spreading code sequence.

Claim 11 (Original): The mobile wireless terminal according to claim 10, wherein

said predetermined number of logic circuits each have a load capacitance smaller than a load capacitance of each of said predetermined number of storage circuits.

Claim 12 (Previously Presented): A mobile wireless terminal for digital radio communication comprising

reception-related modem means for demodulating received digital data and

signal processing means for processing a signal received by said reception-related modem means to output the processed signal,

said reception-related modem means including a digital matched filter for despreading on reception side a received signal sequence having been spread on transmission side,

said digital matched filter comprising:

received signal holding means for successively holding a first predetermined number of samples among samples constituting said received signal sequence input in time-series manner, said first predetermined number of samples held being divided into a second predetermined number of groups;

spreading code generating means for generating a spreading code sequence for said despreading;

correlation value calculating means provided respectively corresponding to said second predetermined number of groups each for calculating a correlation value between samples of a corresponding one of said second predetermined number of group and said spreading code sequence; and

output control means for successively outputting in time-series manner respective correlation values output from respective ones of said correlation value calculating means as correlation values output from one system.

Claim 13 (Previously Presented): A mobile wireless terminal for digital radio communication comprising

reception-related modem means for demodulating received digital data and

signal processing means for processing a signal received by said reception-related modem means to output the processed signal,

said reception-related modem means including a digital matched filter for despreading on reception side a received signal sequence having been spread on transmission side,

said digital matched filter comprising:

received signal holding means for successively holding samples constituting said received signal sequence input in time-series manner,

said received signal holding means including

a predetermined number of storage circuits for holding samples of said received signal sequence input in time-series manner in parallel in the same predetermined number as said predetermined number of storage circuits,

logic circuits provided at respective preceding stages of said predetermined number of storage circuits, said logic circuits each activated to pass an input signal to a corresponding one of said predetermined number of storage circuits and mask the input signal otherwise,

first control means for cyclically causing write enable state of said predetermined number of storage circuits at a predetermined timing to cyclically write said samples of the received signal sequence input in time-series manner into said predetermined number of storage circuits at said predetermined timing, and

second control means for cyclically activating said predetermined number of logic circuits at said predetermined timing to cyclically input said samples of the received signal

sequence input in time-series manner to said predetermined number of storage circuits at said

predetermined timing; and

said digital matched filter further comprising

spreading code generating means for generating a spreading code sequence for said despreading;

and

correlation value calculating means for calculating a correlation value between said samples of

the received signal sequence held in parallel in said predetermined number of storage circuits and said

spreading code sequence,

said correlation value calculating means including

first product-sum calculating means for calculating a correlation value between a part of samples

held in said predetermined number of storage circuits and spreading codes corresponding to said part of

samples in said generated spreading code sequence,

second product-sum calculating means for calculating a correlation value between the rest of

samples held in said predetermined number of storage circuits and spreading codes corresponding to said

rest of samples in said generated spreading code sequence, and

decision means for deciding whether the correlation value output from said first product-sum

calculating means exceeds a predetermined threshold value to stop calculation by said second product-

sum calculating means when said decision means decides that the correlation value output from said first

product-sum calculating means does not exceed said predetermined threshold value.

Claim 14 (Original): The mobile wireless terminal according to claim 13, wherein

said predetermined number of logic circuits each have a load capacitance smaller than a load

capacitance of each of said predetermined number of storage circuits.

Claim 15 (Previously Presented): A mobile wireless terminal for digital radio communication

comprising

reception-related modem means for demodulating received digital data and

signal processing means for processing a signal received by said reception-related modem means

to output the processed signal,

said reception-related modem means including a digital matched filter for despreading on

reception side a received signal sequence having been spread on transmission side,

said digital matched filter comprising:

received signal holding means for successively holding samples constituting said received

signal sequence input in time-series manner,

said received signal holding means including

a first predetermined number of storage circuits for holding samples of said received

signal sequence input in time-series manner in parallel in the same predetermined number as said

predetermined number of storage circuits, said first predetermined number of storage circuits being

divided into a second predetermined number of groups,

logic circuits provided at respective preceding stages of said first predetermined number of

storage circuits, said logic circuits each activated to pass an input signal to a corresponding one of

said predetermined number of storage circuits and mask the input signal otherwise,

first control means for cyclically causing write enable state of said first predetermined number of storage circuits at a predetermined timing to cyclically write said samples of the received signal sequence input in time-series manner into said first predetermined number of storage circuits at said predetermined timing, and

second control means for cyclically activating said first predetermined number of logic circuits at said predetermined timing to cyclically input said samples of the received signal sequence input in time-series manner to said first predetermined number of storage circuits at said predetermined timing;

said digital matched filter further comprising

spreading code generating means for generating a spreading code sequence for said despreading; and

correlation value calculating means provided respectively corresponding to said second predetermined number of groups each for calculating a correlation value between samples of a corresponding one of said second predetermined number of group and said spreading code sequence,

each of said correlation value calculating means including

first product-sum calculating means for calculating a correlation value between a part of samples held in the storage circuits of the corresponding group and spreading codes corresponding to said part of samples in said generated spreading code sequence,

second product-sum calculating means for calculating a correlation value between the rest of samples held in said storage circuits of the corresponding group and spreading codes corresponding to said rest of samples in said generated spreading code sequence, and

decision means for deciding whether the correlation value output from said first product-sum calculating means exceeds a predetermined threshold value to stop calculation by said

second product-sum calculating means when said decision means decides that the correlation value output from said first product-sum calculating means does not exceed said predetermined threshold value; and

said digital matched filter further comprising

output control means for successively outputting in time-series manner respective correlation values output from respective ones of said correlation value calculating means as correlation values output from one system.

Claim 16 (Original): The mobile wireless terminal according to claim 15, wherein

said first predetermined number of logic circuits each have a load capacitance smaller than a load capacitance of each of said first predetermined number of storage circuits.